ORIGINAL

UNITED STATES BANKRUPTCY COURT
EASTERN DISTRICT OF MISSOURI

IN RE:	)	Case No. 03-45870
	)	Chapter 11
	)	
UNION FINANCIAL SERVICES GROUP, INC.,	)	Courtroom No. 5N
	)	Thomas F. Eagleton Courthouse
	)	111 South 10th Street
	)	St. Louis, Missouri 63102
Debtor.	)	
	)	September 26, 2003
	)	9:03 A.M.

TRANSCRIPT OF ESTIMATION HEARING
BEFORE HONORABLE BARRY S. SCHERMER
UNITED STATES BANKRUPTCY JUDGE

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EXHIBITS

*Exhibit 4 under seal

Honor.

THE COURT: Thank you. Is there redirect?

MR. MONSEES: No, Your Honor.

THE COURT: Thank you very much, Dr. Diamond.

MR. MONSEES: Your Honor, I would like to know if Dr. Diamond could be excused from the proceeding at this point? If any other parties anticipate calling him again --

MR. MATTIONI: We have no objection, Your Honor.

MR. MONSEES: Thank you, Counsel.

THE COURT: Yes, he may be. Thank you.

MR. MONSEES: Thank you, Your Honor.

THE COURT: I never seen a man happier to leave St. Louis.

(Laughter)

UNIDENTIFIED ATTORNEY: He has a commitment for his daughter, Your Honor, this afternoon. He's been quite anxious about it.

The United States called Dr. Richard DeGrandchamp.

CLERK: Please raise your right hand.

RICHARD DeGRANDCHAMP, GOVERNMENT'S WITNESS, SWORN

CLERK: Please be seated.

DIRECT EXAMINATION

BY MR. WILLIAMS:

Q Dr. DeGrandchamp, would you please describe for the Court what your academic degrees are?

A Yes, I have an undergraduate degree in biochemistry from the University of Eastern Michigan University. I have a Ph.D., a doctorate in toxicology from the University of Michigan. I then went to Rutgers and accepted a Rutgers fellowship in toxicology for two years where I trained medical students and doctoral candidates. I had a joint appointment at Cornell Medical School for a year where I did the same -- performed the same responsibilities.

From there, I went to the University of Colorado Medical School where I was a National Institutes of Health fellow and trained physicians and doctoral candidates. And I've since joined the faculty as an adjunct assistant professor in molecular toxicology and environmental health.

Q How long have you been consulting on toxicological issues in relation to environmentally contaminated sites?

A Approximately 25 years.

Q Have you had any experience writing formal regulatory guidances for governmental agencies?

A Yes. In fact, I just completed a guidance document for the Department of the Navy, Bureau of Medicine for performing PCB risk assessments for contaminated sites in the last year.

Q Thank you. Are you familiar with the Cottman Avenue site that's --

A Yes, I am.

Q -- owned by the debtor's -- owned by the debtor, Metal

Bank?
A Yes, I am.
Q Is that site environmentally contaminated?
A Yes, it is.
Q Which chemicals are of greatest concern to you from a human health perspective at that site?
A Primarily the dioxin like chemicals, which include dioxin, Furans, and dioxin-like PCBs, as well as non-dioxin-like PCBs or the run of the mill PCBs.
Q All right. Are those two groups of contaminants equally toxic?
A No, they're not. Dioxin chemicals -- dioxin-like chemicals, and I'll just refer them to -- as a class of dioxin-like chemicals are the most carcinogenic or cancer-producing chemicals that we've ever studies. They're far -- they're head and shoulders over non-dioxin-like PCBs. So, on a one to ten scale, I put dioxins at ten and non-dioxin like PCBs as about perhaps a five or a six.
Q All right. Approximately how many times more toxic are dioxins than ordinary PCBs?
A About 75,000.
Q Seventy-five thousand times?
A Yes.
Q And are PCBs -- you say PCBs are of greater concern to you than the metals and the PAHs and other contaminants that have

been found at the site, correct?
A Yes, and I didn't want to give you an indication that PCBs are non-toxic, it's just the relative toxicity of dioxin overwhelms the toxicity of PCBs, but PCBs compared to all the contaminants you just mentioned are very toxic.
Q All right. Now, you testified in the Philadelphia trial that was held last year in --
A Yes.
Q -- Philadelphia, correct?
A Yes, I did.
Q And what did Judge Giles find about dioxins and dioxin-like PCBs at the Cottman Avenue site?
A Well, his ruling, in essence, was that there was a very strong likelihood that dioxin-like chemicals are present at the site and that they have far greater health risks or pose a great toxicity at the site.
Q Since that trial was held, has there been any additional testing at the site and sampling to determine whether, in fact, there are dioxins, furans and dioxin-like PCBs at Cottman Avenue?
A Yes.
Q Would you please describe for us what sampling you're aware of that has recently been done?
A Well, we talk about validated data, and that's data that have been looked at by professional analytical chemists and we

have received one validated package back describing the levels of dioxin and furans in the groundwater.

Q That's groundwater coming from where?

A It's in the southern region. Well, let me rephrase that. We have seven samples, I believe, back that have been validated. Three of them, I believe, are down in the southern region.

Q All right. I'm going to show you a -- the figure W-1 for the Cottman Avenue site. All right, while she's doing that, let's go on to some of the other sampling. Is there any other sampling that has been done for which results have not yet been received?

A Yes. We have samples for surficial soils that -- those are soils that we typically term surficial soils, are zero to six inches. We have subsurface soil samples. We've taken sediment samples out of the mud flat area and, again, some of the groundwater and oil samples.

Q And of those, the groundwater samples are back and validated?

A Correct, for the dioxin and furans.

Q I see. Thank you. And, in fact, were those dioxins and furans in the groundwater found to be in significant concentrations in your opinions?

A Surprisingly so, yes.

Q You say surprisingly, you did not expect that?

A No. In fact, when the plan was drafted, I didn't know why we were collecting groundwater samples because I didn't think we'd have any reason to go after those compounds and I questioned why we were spending the money to sample for groundwater with regard to dioxin and furans because they're admissible in water or not soluble.

Q All right. I call your attention now to the figure on the monitor in front of you, Dr. DeGrandchamp, and ask you to please indicate for the Court where these groundwater samples were taken, if you know?

A Well, we have some down here in the southern region, in this lower region.

Q If you'll touch the screen, I think it will indicate.

A In this region, we have several samples, and then we collected a few samples in this eastern region.

Q In the upper right-hand corner?

A In the right-hand corner, correct.

Q All right. And that's where the dioxins were detected?

A I believe the highest concentrations were down here, which you'd expect to see. Again, it was surprising we found them at all. But I believe the highest concentrations, and they were about 100 times greater than at health level. So, for comparison purposes, we found the highest concentrations down in the southern region.

Q You say greater than a health level, what health level is

that?
A We typically gauge the relative importance or the toxicity of chemicals in water by comparing them to a drinking water standard, it's termed an MCL or a maximum contaminant level. And these -- one sample in particular is about 100 times that level.
Q Thank you. Does that cause you any concern, Doctor, in connection with the human health risks at the Cottman site?
A Yes. I do have to admit that I don't think people were drinking the water necessarily, but it does indicate further contamination of the overlying soils. So, that concerns me.
Q Why does it indicate that?
A Simply because these chemicals are very lipid soluble. That is they'll bind onto particles and they don't move. They're very persistent in the environment. Any detection in groundwater is a fairly strong indication that we've got some high concentrations in those overlying soils.
Q Thank you. Do the dioxins in the groundwater suggest anything to you, other than that?
A Other than that, no.
Q Okay.
A Just, again, I didn't --
Q Okay.
A -- expect to find them in groundwater.
Q Okay.

A But now that we've found them, I think it places more emphasis and more importance on what we're going to find in those surficial soils and subsurface soils.
Q Is it common to have these levels of dioxins in groundwater?
A It's very uncommon.
Q How did -- do you have any understanding how the dioxins came to be at this site?
A Yes.
Q I'd like to call your attention to Government's Exhibit V for identification, which is an aerial photograph of the site, I believe it was an exhibit at the last trial.
MR. WILLIAMS: Can we zoom in on that, please? All right. Can you re-center the photo? There. Thank you.
Q Dr. DeGrandchamp --
MR. WILLIAMS: Zoom a little more, please. Thank you. Re-center it. Push it left. Push -- there, thank you.
Q Dr. DeGrandchamp, would you please indicate on this photo where you understand the underground storage tank and transformer recycling operation was focused?
A I believe it was in this region here, for the most part.
Q All right. And is there any evidence on this photograph that's significant to you and suggestive of how the dioxins came to be found at this site?
A Yes. I didn't come upon this photograph until late in my

analysis, and I asked what these conical structures were. They looked unusual.

Q Which conical structures?

A These conical structures here, I believe there are about six or so.

Q Thank you.

A They were referred to in further review of the documents as sputniks.

Q What are sputniks?

A As it was described in some of the documents I have reviewed, they were used primarily for smelting or burning, retrieving metal products.

Q Are they some sort of furnace?

A Yes.

Q I see. What can be -- what does the burning and furnaces have to do with dioxins?

A Well, when I saw this, it was more or less an epiphany for me because this told me that there was a rationale or reason behind the dioxin and furans being there. So, when I saw these sputniks, it all made sense. It fell into place because dioxins and furans are not produced. They're not manufactured. They're formed de novo through combustion operations or through burning. You can get them through burning simple plastic bags, anything that contains chlorine. And further reading of the documents, particularly with regard to the State Street site,

they were actually using PCB contaminated or laden oil as a fuel.

So, apparently they were burning PCB contaminated oil as a fuel and generating dioxins in the process.

MR. MATTIONI: If Your Honor please, as I hate to object and interrupt, Mr. Williams well knows that the sputniks that have been referred to use natural gas as a fuel, and not some form of PCB contaminated fuel, and just so that the record is clear, because they've mixed State Road and Cottman Avenue together. State Road is an entirely different situation.

MR. WILLIAMS: I was not aware Mr. Mattioni was going to be a testifying witness at this hearing, Your Honor.

THE COURT: I think that this type of material is found at -- at least I think I found it at Page 41 of Judge Giles' decision where he talks about how you get dioxin is by apparently burning PCB contaminated material. That's what you want me to know, isn't it?

MR. WILLIAMS: Yes, Your Honor.

THE COURT: Okay.

MR. WILLIAMS: Yes, Your Honor. Thank you.

BY MR. WILLIAMS:

Q Now, once dioxins are created by burning, and assuming they were created by burning from these kinds of furnaces or other burning operations at the site, where would you expect such dioxins to come to rest on this site?

A Again, because they're not water soluble, they're not going to be leeched away or permeate the soil to any great extent. So, we typically find them on the first, oh, way, two centimeters of the surficial soil covering any property downwind.

Q All right. Have you done any investigation of the wind directions that -- the winds that influence this site and what the prevailing directions of wind flow are?

A Well, the closest meteorological data that we have, I believe, is from nearby Philadelphia airport. And I believe that the direction -- if I can just guesstimate here is, predominantly in this direction.

Q Thank you. In fact, has there ever been any sampling of the Cottman Avenue site specifically to determine the likely parameters of the outline of the plume of any dioxin deposition on the Cottman site?

A Only until recently have we focused on that particular aspect.

Q All right. So, we do or don't know where the highest concentrations are found at this property?

A Not at this point, no.

Q Thank you. Now, other than the dioxin -- in your view, are the dioxin contamination hot spots -- excuse me. Is the presence of dioxin significant enough at this site to require remediation?

A From a human health standpoint, that -- from my perspective as a toxicologist, their removal should predominate. But removing them should be a marginal cost, it should just be relatively insignificant because they don't migrate down like PCB oil does, all the way to the water table.
Q Okay.
A So, while it does pose a significant threat to human health, remediating should not be a very expensive matter.
Q Now, Doctor, you just said that dioxins do not permeate the soil down to the groundwater. However, you testified before that dioxins were found in the groundwater. How do you explain their appearance there?
A This seeming contradiction -- and it may simply be a contradiction because my theory is that they're being swept into the groundwater by virtue of being first dissolved in oil. They will prefer to be in oil because they're oil-like substances. So, to be carried in the groundwater and, again, that's why it was so surprising to find them there, there either had to be a vehicle or there had to be some mass transport of the sediments -- of sediment particles that they're tenaciously bound to.
Q And, in fact, didn't Judge Giles find as a fact in his published opinion that there had been many instances of spills of transformer oil which permeated the ground and went down to the groundwater levels, at least, and even below?

A Yes, he did.
Q Would that explain the presence of the dioxin-like PCBs -- excuse me -- of the dioxins that were found in the groundwater?
A Partially, yes.
Q Thank you. Now, you also said that the PCBs are of concern to you at this site, did you not?
A Yes, I did.
Q Are they of a sufficient character or concentration to cause you to have any opinion for their need for remediation?
A Yes.
Q What is your opinion?
A Well, that the source really needs to be removed because any further excavation in that area will likely bring the contaminated subsurface soils to the surface where people will come in contact with them.
Q Now, earlier you talked about different kinds of PCBs, I think you said there were generic PCBs and then there was something you called dioxin-like PCBs. Would you please explain the difference to the Court?
A Yes. And I didn't want to be dismissive to non-dioxin like PCBs, but putting them on a relative scale, non-dioxin-like PCBs compared to dioxin-like PCBs, but you've got to remember these are very complex mixtures comprising perhaps 209 individual PCBs. But a small fraction of each PCB mixture, particularly the type that were released and spilled at the

Metal Bank site contain a very high level or amount of these dioxin-like PCBs.

Q Now, these dioxin-like PCBs, approximately -- are they of the same level of toxicity? Same relative toxicity of dioxin?

A No. And there's a qualitative part of the answer, and there's a quantitative part of the answer. The National Toxicology Program within the last year and a half actually increased the toxicity of dioxins to a known human carcinogen after a few battles in court, that's the qualitative aspect. So, now we know that they are truly human carcinogens.

The dioxin-like PCBs congeners, the small, very highly toxic portion of these mixtures are thousands of times more toxic than the non-dioxin-like PCBs.

Q You earlier indicated that the mixtures of PCBs that were used at this site often had the highly chlorinated dioxin-like PCBs, is that right?

A That's correct.

Q What kind of -- what mixture of PCBs was predominantly found at this site, if you know?

A Well, we have 1268, 1254, the last two numbers represent the weight by weight of chlorine in each mixture. So, --

Q 1268 would have what percentage of chlorine?

A It would have 68 percent by weight of chlorine.

Q All right. And are you aware of what approximate percentage of those mixtures of PCBs might have contained these

dioxin-like PCBs or might have been made up by these dioxin-like PCBs?

A Well, I want to caveat my answer by saying when Monsanto originally produced Aroclors or these commercial mixtures, every technical lot had a different percentage. But we can expect anywhere from five to 24 percent of the original Aroclor mixture having these dioxin-like very toxic components.

Q How do you know that the PCBs are still at the site after all these years?

A That's true, they undergo weathering. Unfortunately for humans and other critters that live out here, this particular group of dioxin-like congeners, this small fraction, are the most resistant to degradation. So, that while the other non-dioxin-like congeners will simply degrade or be carried away by water, these will actually increase in relative weight percentages as the weathering process goes on because they don't degrade very quickly.

Q So, the light ones go away and it leaves just the heavy ones?

A Yes.

Q How long do PCBs last?

A Non-dioxin-like PCBs -- well, let me just state first of all as a class, on the order of many decades, some of these, up to dioxins, which, of course, can stick around for centuries. But PCBs in general, the half life or the time that it takes

for one half the amount today to degrade is in the order of perhaps 15, 30 years.

Q What causes degradation of those substances?

A A variety of elements naturally occurring at these hazardous waste sites, bugs, microbes. There's both anaerobic and aerobic degradation, photolysis, the sun breaks the bonds and just general weather process, aid in its destruction and its course concoman (phonetic) detoxification.

Q Are there any conditions that would be expected to lengthen the lives of PCBs?

A Yes, we found that --

Q Excuse me. I should say PCBs and dioxins.

A Yeah, and we should probably talk about them as an entire class or as a class of chemicals. But many studies have shown that those PCBs and dioxins on the surficial soils will degrade fairly -- well, relative scale, dinosaur years, within perhaps ten, 20, 30 years. But dioxins further down that are covered up, and they're not exposed to sunlight and some of the elements that aid in degrading these compounds, they'll simply stay there in perpetuity.

Q So, for example, if these -- if this site did not have the -- these contaminants dug up and taken away to a licensed hazardous waste facility for disposal and they were covered up and encapsulated in any form, would that, in your mind, encourage the more rapid or slower degradation?

A Much slower.
Q If they were encapsulated, using the remediation plan proposed by Dr. Kleppinger and the other debtor experts, about how long would you expect these PCBs and dioxins to last?
A The dioxins --
Q And retain their toxicity?
A The dioxins would likely in the subsurface soils -- Paustenbauch has published studies showing that some of these dioxin congeners, the half life, simply the time necessary to decrease the original concentration by one half, that's not total degradation, though, is 100 years. So, I would expect them to be there for several generations.
Q Now, have you worked on other Superfund sites in your career, Doctor?
A Many.
Q Have you reviewed EPA's record of decision remedy and its explanations of significant difference which have revised that remedy?
A Yes, I have.
Q Does that -- does EPA's proposed remedy adequately address the human health risks at the Cottman Avenue site?
A For the spills, it's adequate.
Q What about for the dioxins?
A Because we don't know the impact of the sputniks, the de novo generation and dioxin and furans, we don't know the

extent. But, again, it's likely that that will be a rather insignificant on to the ROD to protect human health simply because they don't go anywhere.

Q Insignificant from what standpoint? Human health?

A From a cost standpoint.

Q Oh, I see. What changes are needed, if any, to address the dioxins that have been found there?

A Well, based on the results of the sampling and analysis that are currently being conducted, we'd know how far the plume went if, indeed, there was a plume from those sputniks. So, we'd confirm that the sputniks are the source of the dioxins and furans that we're now finding in groundwater and address the farther most point that would pose an unacceptable risk based on a risk assessment.

Q How do you remove dioxins that would be expected to be found at this site?

A Well, typically you would just scrape off the first, oh, inch or two of surficial soil, like you would remove PCBs.

Q All right. In this instance, have those surficial soils been covered or are they still exposed?

A They have currently -- they are currently covered with clean fill, two feet of clean fill.

Q So, how would you go about removing the dioxins at this site?

A I'm not an engineer, but I would recommend that if the

soil samples we took show no dioxin and furans in that clean fill, they could simply move the clean fill off, put it someplace on the site, scrape off where we know the surficial soils were because of the decay generation, provided a nice horizontal starting point for us, we'd scrape those soils, cart them away and then put the clean soil back.

Q Thank you. I'd like to move now to the State Road site. Are you familiar with that?

A Yes.

Q Have you looked at the data and the reports that are relating to that site and any contamination that might be found there?

A Yes.

Q Is that site contaminated with hazardous substances?

A Yes.

Q I'd like to refer you to the attachments to Exhibit M.

(Pause)

Q What contaminants of concern are you aware of from a human health standpoint at the State Road site?

A Based on the existing data set?

Q Yes.

A Again, primarily PCBs, dioxin and furans.

Q I'm showing you one of the attachments to our Exhibit M and ask if you recognize that?

A Yes, I do.

Q What does that tell you about the concentrations of PCBs at this site from the human health perspective?
A In the soils, the 118,000 is astronomical.
Q Approximately what level of contamination of PCBs were found at the Cottman Avenue site that have raised such a concern in you?
A Significantly less than this.
Q Was it in the hundreds or thousands or --
A No, it was in the -- less than 100. We did have one sample in the oil where 1268 -- Aroclor 1268 was detected at 1,000, I believe, but that was, I believe, the highest concentration detected.
Q Oh, okay. So, from a human health standpoint, what do these sorts of findings of PCBs at State Road tell you about that site level of risk?
A They're screaming to be remediated. I don't know how else to put it. These concentrations were higher than I've -- I've only seen a couple sites with concentrations this high.
Q All right. Have there been -- are you aware of any past efforts that have been taken to clean up this site to protect the public from the site's contamination risks?
A I haven't made an exhaustive examination of all the documents, but my preliminary assessment is that debris has been removed, I don't know where this occurred, but apparently there was 1,000 cubic yards of soil removed, I don't know for

what purpose. But other than that, a simple asphalt cap was placed on top.

Q Are you aware of what kind of -- what condition that asphalt cap is in?

A Not personally, I didn't see it.

Q Okay. Did you hear Ms. Dietz who testified earlier that that cap was cracked and that there is grass and weeds growing out through those cracks?

A Yes.

Q Does that cause you any concern about the efficacy of the -- what is generally the purpose for installing a cap over a contaminated site like this, if you know?

A Well, to use Ms. Dietz's term, it's a band aid to prevent PCBs from migrating into groundwater.

Q Okay. So, in other words, it's to keep the rain water and so forth --

A Precisely.

Q -- from percolating through?

A Precisely.

Q Okay. If it's cracked, does that effect the efficacy of the cap's attempt to accomplish that?

A Well, no, it -- any breach in the asphalt will, of course, allow water to permeate that area. But it also allows contact to be made with the underlying PCBs.

Q All right. Besides the PCBs, I think you testified that

there are or may be dioxins at this site?
A There's a good chance. Because the original Aroclors that were released had these dioxin-like PCBs as part of the manufacturing operation by Monsanto. So, when they were putting those transformers, they had the dioxin-like PCBs as an inherent part of the overall composition.
Q Was their transformer recycling operations at this site, as well as at Cottman?
A From what I could tell, from following the thread through the documents, many of the transformers were stored at the Cottman facility. And the oil was transferred to the State Road facility where the oil was burned as fuel oil.
Q All right. And would you or would you not also expect to find dioxin-like PCBs at the State Road site?
A It's a reasonable conclusion.
Q In fact, given the kinds of PCBs that were typically found in the manufacturers mixtures or Aroclors of PCBs, what would your -- do you have an opinion as to whether it is more or less likely than not that dioxin-like PCBs are, in fact, at this site?
A It's more likely than not. And it's further more likely that they've actually been enriched due to the degradation, once again, of the lower chlorinated congeners.
Q All right. Where -- why do you think that there may be dioxins found at this State Road site?

A Once again, they had a similar process, I believe, to use the PCB contaminated oil as fuel oil, I saw that in a deposition by Mr. Medine and I believe Dr. Kleppinger also alluded to that fact.
Q All right. So, would that necessarily create dioxins?
A You only need temperatures approximating 400 to 500 Fahrenheit to generate dioxin and furans. And keep in mind, they were recovering metals from wire which are ensheathed by plastic. So, when you burn plastic, you get dioxins.
Q Okay. Is that how they removed the insulation from the wires?
A I believe so.
Q Do you have an opinion whether the State Road site also needs remediation?
A Yes.
Q And what is that opinion?
A That the asphalt cap, which is essentially providing a Tupperware cover, if you will, preventing further degradation of those very toxic compounds, that needs to be removed and the contaminated soils, which will be contaminated for the next century, they need to be removed and replaced with clean fill.
Q Well, Doctor, a minute ago you said that the cap would stop or slow down that degradation and, therefore -- or, no, a minute ago, you said that the degradation of the lighter PCBs was causing a greater and greater concentration of the dioxin

like PCBs there. Now you're saying that the asphalt cap would slow down that degradation. Is there a conflict between those two?

A No, I don't know when the cap was put down relative to the spills, but what we have with these mixtures is once they're released into the environment, they undergo a process we call weathering. So, all of the very harsh elements attack these compounds, either pluck off the chlorines one at a time or just, you know, explode the bitunnel ring where the compound is no longer toxic. When you cover this up, when you cover this and you prevent that natural process from occurring, you delay the degradation.

Q What would the major step be that you would recommend for remediation of the State Road site as to the PCBs?

A Well, number one, the site needs to be further investigated with regard to the deposition of the dioxin and furans caused from de novo generation through the burning process. So, we've got to hunt down where that plume is, and it certainly gone -- it's gone off site, judging by the wind speed and the prevailing wind.

I also noticed that some of these PCBs have migrated offsite, so they need to be chased down.

So, the first step would be to find out the extent of contamination laterally or an in real extent, and then investigate the depth of contamination with these PCBs because

the right analysis hasn't been performed yet.
Q All right. Are you aware of Dr. Medine's recommendation for a remedial investigation of this site?
A Yes.
Q And do you endorse that recommendation?
A Yes.
Q As to actually conducting such a remediation, though, do you, from a human health standpoint, have any overriding recommendations for this site, how the PCBs could be taken care of?
A I believe there's -- I'm not an engineer, but I believe there's only one treatment, and that is to dig and haul. So, the asphalt cap should be taken off, I guess an alternative would be to take off the cap, post guards for the next 100 years until the concentrations decrease sufficiently where they will no longer pose a risk.
Q Now, is it -- is it true that at some contaminated sites, the contaminants are, in fact, capped -- left in place and capped rather than being removed?
A Yes.
Q What makes the difference in your mind as a human health risk assessor that would indicate whether it's wiser to leave the contaminants in place and try to isolate them or, on the other hand, to remove them and haul them to a licensed disposal facility?

A It all boils down to an issue of persistence. Typically when you're dealing with a gasoline spill where you have one of the components as benzine, which is a class A carcinogenic that causes Leukemia, you can cap it. But you know that the benzine is going to be degraded very, very quickly, on the order of two to three years tops. I've seen very large plumes naturally attenuate. In that situation, you could put on a cap, monitor it, and then as soon as the benzine concentration was reduced to health protective levels, then you could simply remove the cap and walk away from the site.

Q All right. Do you generally agree or disagree with Dr. Kleppinger's recommendation for remediation at the Cottman Avenue site?

A The Cottman Avenue site?

Q Yes, going back to Cottman.

A I disagree.

Q And what are the major reasons for your disagreement?

A Well, first, you're not controlling the source of contamination, which are the -- primarily the subsurface soils. Secondly, there's no attention directed towards the dioxin and furans that were likely generated by these sputniks, that would be number two. And number three, as in Judge Giles' ruling, some of these corbicula clams have been gathered and sold in markets. So, people have been known to eat these clams. So -- in fact, I made a site visit and saw a gentleman catch a rather

big fish and spoke to him about it and he was going to consume a fish that he had caught nearby, he and his family.

So, the mud flats, the health risk posed by the mud flats, I don't think, are appropriately addressed.

Q Okay. In connection with State Road, do you agree or disagree with Dr. Kleppinger's recommendation for no action at the site?

A Disagree.

Q And is that for the reasons previously stated?

A Yes.

MR. WILLIAMS: I have nothing further.

THE COURT: Mr. Mattioni?

CROSS EXAMINATION

BY MR. MATTIONI:

Q Dr. DeGrandchamp, the existence of the furans and dioxins and dibenzofurans and the dioxin-like PCBs, that's not something that you suddenly found out about in August of 2003, is that not correct?

A I'm sorry, I don't understand?

Q Well, when we had the trial before Judge Giles on the liability issues, did you not testify then about the existence of the dioxin-like PCBs and the probability of dioxins, et cetera?

A Yes, I did.

Q And, of course, at that time, you knew all about these

sputniks, they were discussed by several of the Government's witnesses, including yourself, correct?

A Yes.

Q Now, of course, these products -- that is the dioxins and dibenzofurans, et cetera, you can find them in the products of combustion of almost any product that contained or contains chlorine, correct?

A Yes.

Q And, of course, you know that the manmade fill at this site is accumulated over many, many years and included a variety of things, like asphalt, oh, perhaps some of the deposits from nearby other industrial facilities, byproducts of combustion of some of those, you understand that, too, don't you?

A Yes, they can appear in any soils, yes. And I don't know that we've taken samples of the fill. Did -- I didn't find any sample results from any record on the fill material.

Q You mean you are suggesting that in all of the samples that were taken, perhaps some 80,000 or more, that appoints accumulated over all the years from when the Coast Guard and EPA started investigating this site until the trial before Judge Giles, that the EPA never insisted on testing for dioxins and other similar materials, based on the history that they knew of the site?

A Actually, that's not accurate. The Philadelphia National

Academy of Sciences did take samples, I believe it was in '92, and they showed elevated concentrations of dioxins and furans and corbicula, and I believe that they had some sediment samples. So, it was well known back then that the sediments in the mud flat areas were contaminated. I don't --

Q My --

A I'm sorry.

Q My only point being that this is a condition and a phenomena that was already known, for example, when the remedial investigation was completed back in 1995 because much of this information is documented there, including the Academy of Natural Sciences' work, which was conducted in 1991, correct?

A I believe so.

Q And so when the proposed remedial action plan was published by EPA, it had all this information then, as well. And when it issued its ROD, it had this information, as well, correct?

A I presume. I wasn't involved in the project, but projects evolve. And as you find out more about the site, you sometimes have to change direction in sampling analysis.

Q Of course, EPA's been at it at least since 1977, a period of investigation in 1977 to 1980, 1991 to 1995, 1999, 2000 and 2002 and now 2003.

A I've been involved in cases that we haven't found the bad

actors until the very last step of the project. So, this is not highly unusual.

Q As of this point, with all of that investigation, am I not correct that the only entity that's caused the removal of any PCBs, other than accidentally as a result of what you collected in samples, was the debtor Metal Bank through the oil recovery system, it's a fact, is it not?

A I suppose.

Q So, all the other testing, testing and testing had not recovered or removed or remediated anything up till now, other than what the debtors have done, correct?

A I'm confused. Are you asking me if any remediation has occurred there?

Q It is correct that none other than the remediation by Dr. Kleppinger, isn't that also -- that's a fact?

A I suppose.

Q You've investigated this site and you've appeared to testify twice, and you suppose?

A I'm not an engineer, so I haven't looked at what's been remediated, per se, in terms of volume of soil. But from what I've seen an insufficient amount has been removed.

Q And you say an insufficient amount of soil has been removed, if I understand you correctly, what you're saying is that there's some kind of risk which you personally have never quantified, correct?

A Until recently with the dioxin and furan data, there's a strong indication now, at least -- no, you're correct, I haven't quantified the risk, that's what we're waiting for the data for.

Q But you personally have never conducted a quantitative human health risk assessment, correct?

A That's correct.

Q So, all of this is, you know, maybe, I suppose, I think, I believe, I mean it's --

A Well --

Q -- basically speculation, is it not?

A No, it's a bit more than that because if you start with an original mixture of, let's say, Aroclor 1254, you know the composition of these PCB dioxin-like congeners in those mixtures. We have many citations in the literature, peer review literature that describes the nature of these chemicals or these mixtures. One they're released, the concentration will not attenuate significantly for many, many years. So, based on -- I suppose you could call it a theory, but we know that they're there with the Aroclors that were spilled originally.

Q That said, is it not correct that you don't know to what extent these theoretically posited chemicals exist and in what specific locations and in what quantities? All you have is a couple of groundwater samples, one or two of which you have

suggested exceed the MCL, the levels est for drinking water?

MR. WILLIAMS: Objection to the term theoretically posited samples. The witness' testimony is that they're known to be, not theoretically posited.

MR. MATTIONI: Your Honor, I'll ask a different question to satisfy Mr. Williams.

Q There were -- I think you pointed to five groundwater samples?

A I believe there were seven.

Q All right, seven. And am I not correct that only two or three of those exceeded the MCL?

A Three of them, yes.

Q And of those, only two of them just barely?

A No. Two of them -- the MCL is about 30 -- it is 30 pecograms per liter. I believe the two samples were 600.

Q Wasn't one 30.2 and the other just slightly over that?

A No, they were significantly greater than that. The other thing you've got to keep in mind is some of these samples were located in areas that are not colocalized with the location of those sputniks. So, of course, you wouldn't expect to find the dioxin and furans there. It would only be in the immediate area where the sputniks were located or downwind from that area that you expect to find dioxins and furans. So, we haven't -- we haven't run a pattern analysis, or a fingerprinting.

Q And based on this relatively meager evidence and the fact

that it doesn't correlate to sputnik locations, you want to expand excavation and removal from the Cottman Avenue site to a landfill somewhere else.

A No. The spills that have occurred that need to be excavated are colocalized with dioxin-like PCBs, those are distinct from the sputnik pollution.

The sputnik pollution needed -- would need to be removed to remove the dioxins and furans, but the cost of removing those would be likely insignificant.

Q But in any event, all of the stuff that you want to do is -- you say remove. If you dig up and haul, it has to go somewhere.

A Yes.

Q It goes to a landfill somewhere.

A Yes, it does.

Q And at the landfill, you have the liner and you have a cap.

A Yes.

Q Right?

A Yes.

Q So, it's now in somebody else's back yard.

A Well, no, more --

Q Plus the process of getting it there and bringing in --

MR. WILLIAMS: Objection. He cut the witness off on his answer, Your Honor.

MR. MATTIONI: My question hadn't been finished, Your Honor, so I --

THE COURT: Go ahead, sir.

MR. MATTIONI: Maybe we can duel over it.

BY MR. MATTIONI:

Q Plus the fact that you have the risk of transportation to the landfill and transportation in of the replacement clean soils, correct?

A Yes. And I would like -- can I make a distinction here?

MR. MATTIONI: I think my question has been answered, Your Honor, I don't know --

THE COURT: Well, I think he answered the question by saying, yes, but he can now amplify on it.

MR. MATTIONI: Sure.

A As far as taking these materials to a landfill, you're right, these would go to a landfill. But most importantly, other people wouldn't be there for there to be risk in either contamination with people. So, now you've got a landfill isolated away from exposures.

With regard to the accident analysis which you're proposing, there is a very important distinction here between voluntary risks, which are assumed by someone who operates in that vocation. He knows what the risks are.

Both of those are theoretical risks. We take the concentrations on the one hand, we calculate the risk. On the

other hand, we talk about how many miles driven in a dump truck. But on the one hand, you might have someone exposed to those contaminants without any notion that they're there. No one's going to tell the workers who might work in that area that those contaminants are there. However, the dump truck driver driving away knows precisely the risk posed in his occupation.

Q Of course, at this -- at this site, at this time, as you've already indicated, two feet of clean fill have been placed over the southern area where you found these contaminants, many feet below and suggested that has not provided any protection?

A Well, the protection that's provided is temporary. Again, if you can assure that exposure won't occur for the next 200 years, then I suppose it would be an effective preventive cap.

Q Of course, at the typical landfill, a 30-year period of monitoring is all that's required, is it not?

A I'm not familiar with the engineering of landfills.

Q Now, I want to just digress momentarily to State Road. You're referred to an astronomical result of 118,000 parts per million of PCBs as though that presently exists. You have absolutely no evidence of that, do you?

A No. I was talking about the data set --

Q You were talking about a data set that existed at the time when Metal Bank took action to remediate the site --

A Yes.
Q -- back in 1985.
A I didn't see anywhere in the record that that had been removed or anything had been removed.
Q You're making an assumption that nothing was done to protect against that or to remove it or take any further action?
A Yes, I did make that assumption.
MR. MATTIONI: Thank you. I have no further questions.

REDIRECT EXAMINATION

BY MR. WILLIAMS:
Q Dr. DeGrandchamp, Mr. Mattioni suggested that the materials in the fill material used at Cottman Avenue may have contributed as a source of origin for the PCBs at the site. Did Judge Giles accept or reject that notion in his decision for the last trial?
THE COURT: Yes, sir?
MR. MATTIONI: Objection, Your Honor. I did not suggest PCBs. We were talking about dioxins and those related products.
MR. WILLIAMS: Okay. With that clarification, I'll withdrawal my question.
Q Now, in connection with the landfill, Mr. Mattioni suggested that we're just moving it from this landfill at the